

CLAIMS

WE CLAIM:

1. An optical switch for switching optical signals between a plurality of input and output optical fibers, comprising:

a holder;

a first stopper;

a second stopper;

a driver;

at least one input collimator aligning with the input fibers and collimating the input light ;

at least one output collimator aligning with the output fibers and collimating the output light; and

a switching element assembled with the holder and having an optical component displaceable between a first and a second positions and a rotating mechanism which rotationally moves the optical component between the first stopper (corresponding to the first position) and the second stopper (corresponding to the second position);

whereby, when the switching element is in the first position, the optical component is in optical paths from the input collimators to the output collimators, and light beams from the input fibers transmit sequentially through the input collimators, the optical component, the output collimators, and then to the output fibers; and when the switching element is in the second position, the optical component is out of the optical paths, and light beams from the input fibers transmit through the input collimators, the output collimators, and to the output

fibers, without being bent or deflected by the optical component to transmit to different output fibers.

2. The optical switch as claimed in claim 1, wherein the rotating mechanism comprises a bracket with the optical component fixed thereto, which is actuated to rotate and rotationally moves the optical component between the first stopper (the first position) and the second stopper (the second position).

3. The optical switch as claimed in claim 2, wherein the rotating mechanism further comprises an axle shaft rotationally engaged with the bracket, which axle shaft is engaged with the holder to allow the bracket to rotate with respect to the holder.

4. The optical switch as claimed in claim 3, wherein the rotating mechanism further comprises a cantilevered spring with a front end abutting against the axle shaft and elastically pressing the axle shaft against the holder to hold the axle shaft and the bracket in place and a rear end mounted on the holder.

5. The optical switch as claimed in claim 1, further comprising a housing which has a base accommodating the switching element, the driver and the holder therein, and a top cover fixing the second stopper.

6. The optical switch as claimed in claim 1, wherein the holder has a guiding hole to fix the first stopper.

7. The optical switch as claimed in claim 1, wherein the driver is a relay driving the rotating mechanism to rotate and resulting in the optical component moving between the first position and the second position when an electrical signal is applied to the relay.

8. The optical switch as claimed in claim 1, wherein the optical component is

a prism or a mirror.

9. The optical switch as claimed in claim 1, wherein the input fibers and the output fibers are accommodated in respective boots for being prevented from flexing excessively.

10. The optical switch as claimed in claim 1, wherein the holder has two collimator holders at a forward side to hold the input collimators and the output collimators in alignment with each other.

11. The optical switch as claimed in claim 10, wherein the holder further has two shaft supporters at a rear side to support the axle shaft.

12. An optical switch for switching optical signals between a plurality of input and output optical fibers, comprising:

a holder;

at least one input collimator aligning with the input fibers and collimating the input light ;

at least one output collimator aligning with the output fibers and collimating the output light; and

a switching element assembled with the holder further having:

an optical component displaceable between a first position and a second position;

a bracket to which the optical component is fixed, which bracket is actuated to rotate and rotationally moves the optical component between the first position and the second position;

an axle shaft rotationally engaged with the bracket, which axle shaft engages with the holder to fix the bracket in rotational engagement

with the holder; and

a cantilevered spring abutting against the axle shaft, which elastically presses the axle shaft against the holder to hold the axle shaft and the bracket in place;

whereby, when the switching element is in the first position, the optical component is positioned in the optical paths between the input and the output fibers, and light beams from the input fibers transmits sequentially through the input collimators, the optical component, the output collimators, and then to the output fibers, respectively, having been bent or deflected by the optical component to transmit through a different output fiber than would be the case if the light beam had not transmitted through the optical component; and when the switching element is in the second position, the optical component is positioned out of the optical paths, and light beams from the input fibers directly transmit to the output fibers without being bent or deflected by the optical component to transmit to different output fibers.

13. The optical switch as claimed in claim 12, further comprising at least one first stopper to locate the first position and one second stopper to locate the second position of the optical component.

14. The optical switch as claimed in claim 13, further comprising a housing which has a base accommodating the switching element, the driver and the holder therein, and a top cover fixing the second stopper.

15. The optical switch as claimed in claim 13, wherein the holder has a guiding hole to fix the first stopper.

16. The optical switch as claimed in claim 12, wherein the holder has two

collimator holders at a forward side to hold the input collimators and the output collimators in alignment with each other.

17. The optical switch as claimed in claim 16, wherein the holder further has two shaft supporters at a rear side to support the axle shaft.

18. The optical switch as claimed in claim 12, further comprising a driver, which drives the rotating mechanism to rotate and makes the optical component move between the first position and the second position.

19. The optical switch as claimed in claim 12, wherein the optical component is a prism or a mirror.

20. The optical switch as claimed in claim 12, wherein the input fibers and the output fibers are accommodated in respective boots for being prevented from flexing excessively.

21. An optical switch comprising:

two pairs of collimators positioned by two sides of a moveable prism;

said prism held by an L-shaped holder,

said holder controlled by two shafts wherein one is translated while the other is moved along a slanted groove so as to have said holder moved in a tilting manner for making said prism up and down moveable between said two pairs of collimators.